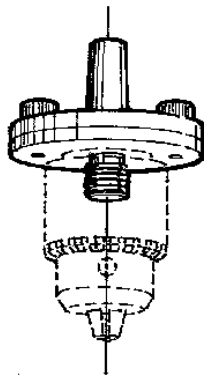
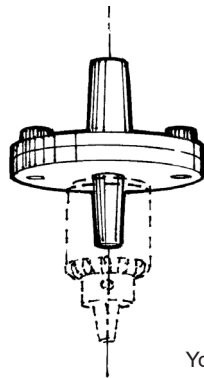


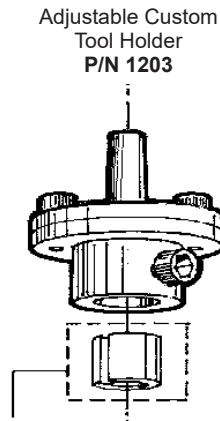
Adjustable Live Center
P/N 1201



Adjustable Chuck Holder
P/N 1202
(3/8-24 thread For 1/4" and 3/8" Jacobs drill chucks, chucks not included.)



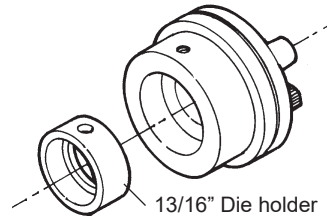
Adjustable Chuck Holder
P/N 1204
(0JT taper for 5/32" Jacobs drill chuck, chucks not included.)



Adjustable Custom Tool Holder
P/N 1203
Your own custom made split collet 5/8" O.D. (Not Included)



Adjustable Bullnose Live Center
P/N 1205



Adjustable 1" Die Holder
P/N 1206
13/16" Die holder bushing (Included)

SHERLINE PRODUCTS

INCORPORATED 1974

Adjustable Tailstock Tool Holders

P/N 1201, 1202, 1203, 1204, 1205 and 1206

Development of the adjustable tool holders

The Sherline lathe has come a long way since its original conception twenty-five years ago. It started out as a machine that could be manufactured and sold at a very reasonable price, but the accuracy was such that it had limited use.

When I purchased the company in 1974 and started to produce these machines in the USA, I completely changed the manufacturing methods and "tightened the tolerances." The biggest improvement in the machines came with the advent of CNC (computer numeric controlled) machines, which is how Sherline tools have been manufactured since the early 1990's.

Along with the improved accuracy came another set of problems; customers are now using Sherline tools to do work that, until now, could only be done on machines costing thousands of dollars. The newest Sherline lathes now have features and are produced to a level of accuracy that make the adjustable nature of these tool holders much less necessary. However, there are many thousands of existing machines produced over the past four decades that can benefit from the improved headstock-to-tailstock alignment these accessories can provide.

Only someone new to the machine trade would talk about "perfect" alignment. In the machine business you talk tolerances even if you can't measure an error, because now the error has to be assumed from the tolerances of your method of checking. To maximize the use of the Sherline lathe we are introducing a series of tailstock tool holders. Holders such as these have always been used in setting up turret lathes and screw machines in the machine trade to make up for the inaccuracies in machine tools or the lack of room for drill chucks, etc.

Use of the adjustable tool holders

The Sherline holders have a Morse #0 taper to fit the tailstock and a choice of six tool holders:

P/N 1201...Adjustable live center

P/N 1202...3/8-24 holder for 1/4" or 3/8" drill chuck

P/N 1203...5/8" Tool holder

P/N 1204...0JT holder for 5/32" drill chuck*

P/N 1205...Adjustable bullnose live center

P/N 1206...1" threading die holder w/ 13/16" bushing

**NOTE: Because the 5/32" chuck is pressed onto the zero Jacobs taper, the holder can be ordered with the chuck include and already pressed on. This is P/N 1016.*

These holders are simple to use. The holders are divided into two parts with flanges. These flanges are bolted together with two screws. The clearance holes for these screws allow the front to be adjusted in relation to the rear. The two flanges have engraved witness marks (grooves). The marks should always be located at the top so the holder is located the same way in the tailstock each time it is used.

The accuracy that is attainable is governed by the amount of skilled effort you put forth. Before starting, it is wise to clamp your headstock square with the bed. This can usually be accomplished by loosening the headstock and pushing back evenly against the alignment key (located under the headstock) and retightening.

Adjustable Chuck Holders

To line up the tailstock chuck, put a scrap piece in the 3-jaw chuck that sticks out approximately 3/4" and face and center drill the end with your present Morse #0 arbor and drill chuck. The center drill will find center of the stock even though the chuck may not be lined up perfectly.

Next, mount the drill chuck on the adjustable arbor with the center drill still in it. Bring the tailstock up until the center drill is in the just drilled hole with the screws loose. Tighten when you feel it's on center in the hole. Repeat this process to assure alignment using the new adjustable arbor.

This should be close enough for a drill chuck because drill chucks are only accurate within .003" when new at best. Accurate drill chucks cost approximately four times as much and only run within .002". They might claim .001", but I haven't seen it unless you have brand new everything. They are not a good investment for the home shop machinist.

Chuck holders are normally sold without chucks. The threads on the P/N 1202 chuck holder will accept either the 1/4" or the 3/8" drill chuck. The P/N 1204 has a zero Jacobs taper onto which the 5/32" drill chuck is pressed. If you already have a 5/32" chuck with a #1 or #0 Morse tapered arbor pressed in and don't want to remove it, you can purchase the chuck and adjustable back together as P/N 1016.

Adjustable Live Centers—Regular and Bullnose

With the drill chuck aligned you can use the same setup to align the adjustable live center by putting the point into the center drilled hole and tightening the screws to start. In the case of the bullnose live center, it is intended for tubing or center holes from 5/16" up to 1-3/4".

Turn a test bar and correct any error. This can be time consuming and adjustments can be made by never locking the screws so tight that you can't move it with a few taps of a small mallet. When aligned to your satisfaction, screws can then be tightened completely.

Adjustable Tool Holder

The adjustable tool holder accommodates larger drills and cutting tools that can't be held in our standard drill chuck. Tools are held in a split bushing that can easily be made. The outside diameter of the bushing must be .625" and the inside diameter is sized to fit the tool you wish to hold. The bushing is then split through one side with a hacksaw or slitting saw in the direction of the hole. The tool can now be clamped in the holder using this split bushing. For example, a 3/8" stub drill held in a 3/8" drill chuck may take up too much room between centers because of the length of the chuck. By holding the drill in the tool holder less distance between centers is lost.

Adjustable 1" Die Holder

The adjustable die holder holds a 1" button die for tapping threads on a shaft. Also included is a bushing that allows a 13/16" die to be held. The depth of thread that can be cut is somewhat limited by the depth of the hole in the base. For smaller threads, a hole can be drilled in the center of the back plate to provide additional clearance. Just make sure you don't get so close to the outside of the #0 Morse taper that you weaken the holder. For larger and longer threads, a simple standoff can be made to hold the die and holder forward of the back plate. Two equal lengths of drilled stock that are square on each end are normally sufficient (See Figure 1).

The best method of driving the spindle during this operation would be by hand using a hand crank from the thread cutting attachment (P/N 3100). Allow the tailstock and die to slide along the bed as the die feeds itself onto the part by leaving the tailstock loose enough to move easily. Be sure to get the chips to break clear of the part before backing the die

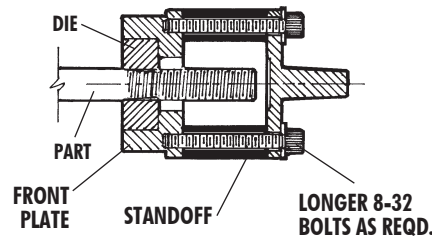


Figure 1—A longer thread can be cut by using standoffs between the front and back plates.

off. A good thread can be ruined when backing the die off if you don't pay attention to this detail.

Working to the level of accuracy you actually need

I personally don't believe a person should try and get these tools set any more accurately than you realistically need. Machining is a process that takes place under high loads and temperatures. A perfectly aligned machine doesn't produce a perfect part without the skill of an operator who copes with the many variables. The skill of machining is making parts that are to closer tolerances than the machine you are working with was built. If you cut a slight taper on a lathe there is nothing wrong with straightening it with a flat mill file and polishing with 320A wet/dry paper. This should only take a couple of minutes. Trying to align your machine could take hours only to find the machine alignment satisfactory, but your cutter was dull and below center. Please don't become a machinist who can never get a job done correctly because of the equipment on hand. I've seen beautiful parts produced in machine shops on equipment that was worn out twenty years ago. It's the machinists that build these parts, not the machines!

Thank you,
Sherline Products Inc.

Parts List

| NO. REQ. | PART NO. | DESCRIPTION |
|----------|----------|---|
| 1 | 10920 | Live Center Point (P/N 1201) |
| - | 10930 | 3/8" Bearing (P/N 1201-1 req., 1205-2 req.) |
| 1 | 11822 | Bullnose Live Center (P/N 1205) |
| 1 | 11823 | Bullnose Live Center Preload Nut (P/N 1205) |
| 1 | 12040 | Adjustable Tool Back (P/N 1201, -2, -3, -4, -5, -6) |
| 2 | 12050 | 8-32 x 3/8" SHCS (P/N 1201, -2, -3, -4, -5, -6) |
| 2 | 12060 | #8 Washers (P/N 1201, -2, -3, -4, -5, -6) |
| 1 | 12070 | 9/64" Hex Key (P/N 1201, -2, -3, -4, -5, -6) |
| 1 | 12080 | Adjustable Live Center Face (P/N 1201) |
| 1 | 12090 | Adjustable Chuck Arbor Face (P/N 1202) |
| 1 | 12100 | Adjustable Tool Holder Face (P/N 1203) |
| 1 | 12120 | 1" Die Holder Face (P/N 1206) |
| 1 | 12130 | 13/16" Adapter Bushing P/N 1206) |
| 1 | 12140 | Adjustable OJT chuck holder face (P/N 1204) |
| 1 | 12151 | Bullnose Live Center Base Plate (P/N 1205) |
| 1 | 31080 | 10-32 x 3/8" Cone Point Set Screw (P/N 1206) |
| 1 | 40770 | 10-32 x 5/16" SHCS (P/N 1203) |
| 1 | 67115 | 5-40 x 7/8" SHCS (P/N 1205) |